

HYPERTENSION SPECIALIST

Executive Summary

Hypertension is an important public health problem, as it contributes mightily to many forms of cardiovascular and renal diseases. Although great strides have been made in the proportion of the US population that achieves blood pressure targets, many Americans still have undertreated and uncontrolled blood pressures that increase the risk of expensive strokes, heart attacks, heart failure, and dialysis. Because hypertension is a common, but heterogeneous and sometimes complex condition, the American Society of Hypertension has, since 1999, certified physicians as “ASH Hypertension Specialists.” Such Hypertension Specialists have a proven track record of controlling blood pressure in “resistant hypertensive” patients, the general population whom they serve, and educating other physicians to help them achieve higher blood pressure control rates among their patient populations. This report sets out a rationale for increased reimbursement for care of hypertensive patients by ASH Certified Hypertension Specialists.

I. Public Health Importance of Hypertension

Approximately 29% of American adults had hypertension in the most recent National Health And Nutrition Examination Survey (NHANES 2007-08) [1]. Although the prevalence of hypertension has remained stable since 2000 [1], the age-associated increase in hypertension prevalence, and the increase in the numbers of older Americans [2] leads to the conclusion that, in 2010, approximately 75 million American adults are affected, making this the most common form of cardiovascular disease in the United States. Nationwide data indicate that hypertension has the highest population-attributable risk for stroke (the third leading cause of death in 2007, the most recent data currently available [3]), and the leading cause of permanent disability since 1928), one of the three most important risk factors for heart disease (which has been the leading cause of death in the US from 1917 to 2007 [3]), a major predisposing risk factor for heart failure (the number-one cause of hospitalization in Medicare beneficiaries since 1990), and a major cause of end-stage renal disease (the most expensive item, on a per-person-year basis, in the Federal budget), . In addition, hypertension is the third-most important risk factor for peripheral vascular disease (the most common cause of lower-limb amputations), and the number-one risk factor for vascular dementia (the #8 cause of death in 2007, and the second-most common cause of nursing home placement). Perhaps because hypertension is the most common reason for an adult to consult a physician for treatment of a chronic condition [4], the cost of hypertension in 2010 in the US was expected to exceed \$76.6 billion [5]. More importantly, the National Committee on Quality Assurance has calculated, nearly identically for the last 5-years (2002-2007), that better control of hypertension nationwide would be the medical intervention that is likely to save the most lives (14,000-34,000), and the second most hospital dollars (\$425 million to \$1.1 billion) annually, based on otherwise unexplained variations in medical costs [6].

II. Heterogeneity of Hypertension

Hypertension is a complex condition that varies greatly in severity. Although there was once the hope that a single medication, given once-daily, might be able to control blood pressure in a majority of patients with the condition, recent data indicate that the vast majority of patients

require two or more medications to achieve and maintain blood pressure control (traditionally defined as blood pressure < 140/90 mm Hg). Recent national and international expert panels have recommended that high-risk hypertensive patients (e.g., those with diabetes [7], chronic kidney disease [8], and established heart disease [9]) should have their blood pressures controlled to even lower thresholds (typically < 130/80 mm Hg, although even lower targets have been proposed for some of these very high-risk groups).

III. Challenges in Hypertension

Approximately 15% of people with hypertension are considered “resistant” (blood pressure remains elevated despite prescription of at least 3 properly-chosen medications [10]). Patients with this condition are challenging to diagnose and treat, and are often referred by primary care physicians (including cardiologists, nephrologists, endocrinologists, and other medical subspecialists) to physicians who have special knowledge and expertise in the field of hypertension (“Hypertension Specialists”).

Although the vast majority of patients with hypertension have no known cause for their condition (so-called “primary hypertension”), about 5% of the hypertensive US population do have a secondary cause for their condition. Because people with a secondary cause typically need special attention, either because the cause is (by definition) uncommon, or because the blood pressure responds only to an intervention specific to each secondary cause of hypertension, these patients are often referred to a Hypertension Specialist, for further evaluation and management of their secondary cause of hypertension.

IV. Limited Supply of Hypertension Specialists

There are currently less than 1,500 physicians who have become certified as Hypertension Specialists by meeting the specified criteria (outlined below) and passing the examination given by the American Society of Hypertension’s Specialist Program. Thus, it is apparent that to meet the nationwide demand for these physicians’ services in caring for patients with complex, resistant, or secondary hypertension, many more Hypertension Specialists will be required. Because of the important role that these Hypertension Specialists can, do, and will play in the prevention of adverse cardiovascular and renal disease outcomes, it is necessary to describe the current criteria for the designation of “Specialist in Clinical Hypertension.”

V. Current criteria for the designation of “Specialist in Clinical Hypertension”

- Medical degree (MD, DO, or equivalent) and unrestricted license to practice medicine
- Specialty Board Certification in a discipline recognized by the American Board of Medical Specialties (Internal Medicine, Cardiology, Nephrology, Endocrinology, Family Medicine, Pediatrics, Obstetrics/Gynecology, etc.)
- Competent in all modalities involved in the diagnosis and treatment of hypertension
- Passed the examination produced and offered by the American Society of Hypertension’s Specialist Program.

VI. Clinical Function of Hypertension Specialist

It is expected, based on current standards and practices, that a majority (at least 50%) of the Hypertension Specialist's clinical time and effort will be devoted to care of patients with hypertension and related disorders. The major activities that the physician is likely to be involved include, but are not limited to,

- A. Referral destination for difficult to manage ("resistant") hypertension
- B. Referral destination for investigation for secondary causes of hypertension
- C. Referral destination for investigation of White Coat and Masked HTN
- D. Referral destination for assessment of global cardiovascular and renal risk using sophisticated techniques
- E. Serves as community resource for hypertension and related disorders, e.g., formulary committees, credentialing committees, training programs, medical insurance companies, outreach programs
- F. Referral destination for integrating lifestyle modifications in hypertension treatment strategies

VII. Impact of the Hypertension Specialist in "Resistant Hypertension"

Although there are no randomized clinical trials examining the quality of care of hypertensive patients delivered by Hypertension Specialists vs. other physicians, a body of evidence indicates that Hypertension Specialists excel in controlling blood pressure and other cardiovascular risk factors. This is particularly true for patients with "resistant hypertension." One report from the Cleveland Clinic indicates that 95% of such patients at that institution received an appropriate diagnosis after a suitable, but limited evaluation [11]. A much earlier report from the Yale University Hypertension Center indicated that, in 91 patients with resistant hypertension (who by definition had uncontrolled blood pressure when first seen by the Hypertension Specialist at that Center), a specific diagnosis was made in 91%, and "blood pressure control" was achieved in 53% [12]. A more recent report from the RUSH University Hypertension Center included 141 such patients; 94% received a specific diagnosis for their "resistant hypertension," and 53% had their blood pressures brought under control ($< 140/90$ mm Hg) [13]. These two reports are particularly important, as one of the entry criteria for each study was that **all** patients had **failed** to achieve blood pressure control when seen by at least one other physician; many were referred to these Hypertension Specialists after consultation with more than one physician, many of whom were cardiologists, nephrologists, endocrinologists, or other medical subspecialists. The fact that 53% of these patients achieved controlled blood pressure, sometimes after even a single visit to a Hypertension Specialist, highlights the high cost-effectiveness of such referrals, and the wisdom of such referrals. One randomized controlled study compared the care of a Hypertension Specialist with changes to an antihypertensive regimen suggested by a more intensive (and expensive) testing using a bioimpedance device in 104 resistant hypertensive patients at The Mayo Clinic. The proportion of patients achieving blood pressure control ($\leq 140/90$ mm Hg) after 3 months was significantly different ($P < 0.05$) between the two groups: 56% for the tested group, vs. 33% for those seen by Hypertension Specialists [14]. This result is likely to have been confounded by the 13 excluded subjects, the high proportion (34%) of secondary causes that were identified but not addressed during follow-up (at the patient's request), and the fact that all 119 eligible patients were seen by a Hypertension Specialist before randomization to either

group (to make it more likely that a suboptimal drug regimen was responsible for their “resistance.” Other groups have not been as successful in using such a device to modify an antihypertensive drug regimen in patients with resistant hypertension, suggesting that a Hypertension Specialist may be able to control blood pressure very well, without wasting more time or money on expensive testing.

VIII. Impact of the Hypertension Specialist in Controlling Blood Pressure (and other cardiovascular risk factors) in Patient Populations Served

Several preliminary reports have suggested that Hypertension Specialists are expert not only at controlling blood pressure, but also other cardiovascular risk factors, in their populations of patients. Annual chart reviews at the RUSH University Hypertension Center (staffed by 3 or more Hypertension Specialists) were performed from 2001-2007 to assess the proportion of its patients who achieved “controlled blood pressure” (< 140/90 mm Hg, the standard used by the National Health And Nutrition Examination Surveys, NHANES) [15-23]. The results are shown as the dark bars (compared to the dark horizontal line, representing the national prevalence of controlled hypertension in NHANES) in Figure 1. At all time points studied, the prevalence of controlled hypertension was about double that of the general hypertensive population. This result is all the more remarkable because more than half of the patient population in this Hypertension Center was referred by other physicians because of inadequate blood pressure control in their offices.

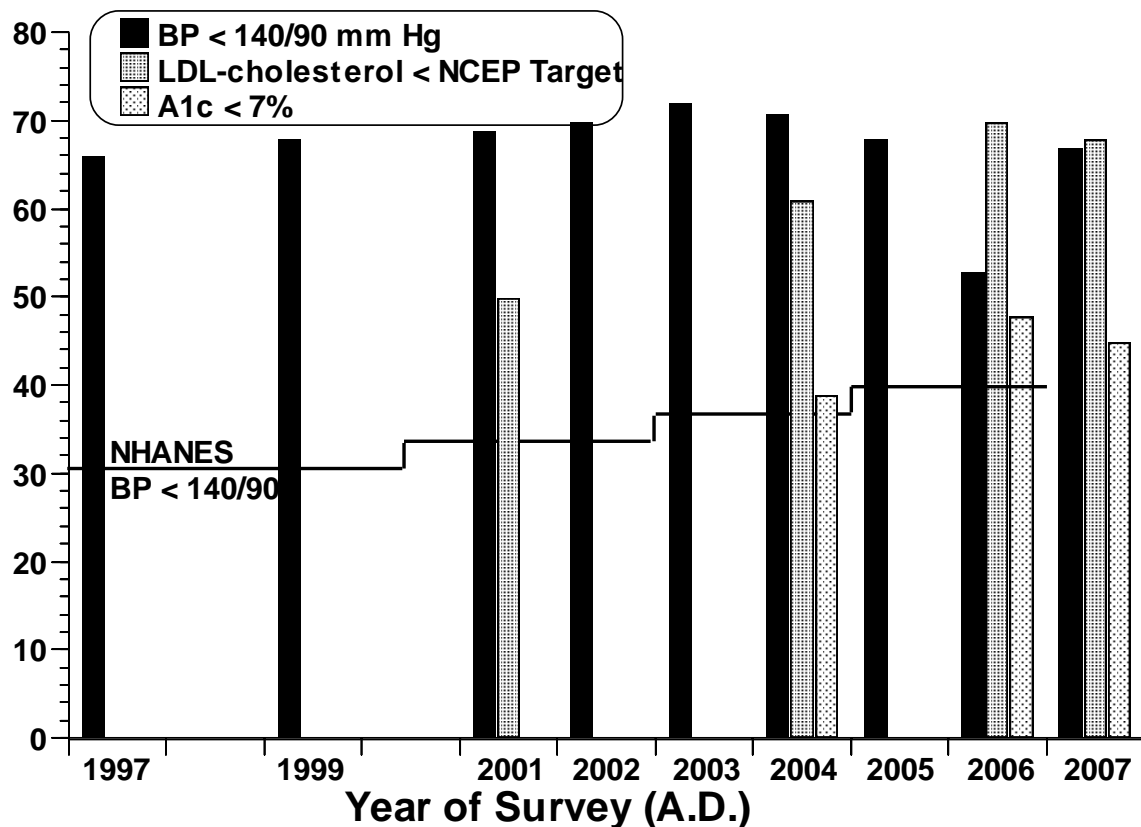


Figure 1. Prevalence of controlled cardiovascular risk factors in one Hypertension Clinic staffed by Hypertension Specialists. The vertical bars represent the prevalence of “controlled hypertension” (< 140/90 mm Hg, as used by the National Health And Nutritional Examination Surveys, NHANES) in chart reviews of the population served by the Hypertension Specialists. The horizontal lines represent the prevalence of “controlled hypertension” in the national survey (NHANES).

Similar, albeit less frequent, surveys of all charts corresponding to patients seen at that Hypertension Center were also reported for control of other cardiovascular risk factors (e.g., low-density lipoprotein [LDL]-cholesterol, A1c levels in diabetics, etc.) [24-26]. These are shown as stippled bars and horizontal lines in Figure 1. Again, the proportion of patients seen by Hypertension Specialists in the Hypertension Center who achieved their targets for these cardiovascular risk factors was twice to three-times that seen in the general US population, as reported by NHANES. These data indicate that Hypertension Specialists excel not only at controlling blood pressure, but also other modifiable cardiovascular risk factors that are amenable to treatment.

IX. Impact of the Hypertension Specialist Outreach Program in Improving Blood Pressure Control in Patient Populations

Since 1999, the American Society of Hypertension’s Registry Initiative, a program initiated by the ASH Carolinas, Florida and Georgia Regional Chapter—based at the Medical University of South Carolina—has **enrolled community-based medical practices in a quality improvement program, based on practice data, audit and feedback reporting**. This framework offers the capability: (a) to reveal areas of, and reasons for, high and low hypertension control rates; and (b) to track physician prescribing patterns, “therapeutic inertia” [27], (technical term for the reluctance of physicians and other healthcare providers to intensify antihypertensive treatment when faced with a patient who is NOT at or below goal blood pressure), frequency of key laboratory tests, and the control of hypertension, dyslipidemia and/or diabetes in their patients.

The American Society of Hypertension (ASH) is committed to quality improvement initiatives, improving hypertension outcomes and to serving as the agent for change in modifiable cardiovascular risk factors. The data collection protocol developed by the ASH Carolinas, Florida and Georgia Chapter’s Hypertension Initiative offers the capability to accomplish these objectives, and plans for its adoption by other regional ASH Chapters are currently underway.

The process and outcomes for the ASH Registry Initiative includes a HIPPA (Health Information Portability and Accountability Act)-compliant mechanism for recording and tracking individual patients in a physician’s practice, so that quarterly “dashboard report cards” can be generated for each physician regarding control rates (using established NCQA/PQRI) indicators (blood pressures <140/<90 mm Hg in hypertensive patients 18–85 years of age; blood pressures <140/<90, <130/<80 and <140/<80 mm Hg in diabetics, LDL-cholesterol levels <100 mg/dL for diabetics, or patients with ischemic cardiovascular disease, and A1c <7%, <8% and >9% for diabetics). The report also includes control rates by age, gender and race/ethnicity subgroups, the medication class and number of medications prescribed, therapeutic inertia score, frequency of visits, and frequency of evidence-based laboratory testing for each of the 3 major risk factors

(cited above). Providers can securely access a list of their patients who have uncontrolled risk factors, haven't been seen in the past 6-months, or haven't had the recommended laboratory tests performed in the prior year. The ASH Registry Initiative currently covers more than 1.5 million unique patients, and is expected to increase in size over the next few years, as the ASH Midwest Chapter (and potentially other Regional Chapters) join in the effort. ASH is currently considering proposals to extend enrollment in the Hypertension Initiative to all other ASH Regional Chapters nationwide, which has the potential to easily double the numbers of included patients and providers.

Successes of the ASH Registry Initiative include: 1) Improving blood pressure control in 208,517 hypertensive patients over a 5-year period from 49% in 2000 to 66% in 2005 [28], which exceeded the improvement observed in the general U.S. population [1]. 2) Control in 82,442 diabetics (to an A1c of <7%, hypercholesterolemia to an LDL-cholesterol level of <100 mg/dL and blood pressure to <130/<80 mm Hg) all improved significantly over the same 5-year period of time. 3) The Registry also confirmed in a sample of more than 265,000 hypertensive patients that roughly a third of those with uncontrolled hypertension were prescribed ≥ 3 blood pressure-lowering medications and, thus, appear to be treatment-resistant [29]. 4) The principals then completed a study in collaboration with the Founder and First President of ASH, which showed that hypertension specialists obtained control in roughly 3/5 of uncontrolled hypertensive patients, mostly treatment-refractory or resistant, without benefit of plasma renin activity measurements, and roughly 3/4 of patients when they knew the plasma renin [30]. Blood pressure declined by a mean of 29/14 mmHg when the Hypertension Specialists knew the plasma renin and 19/11 when they didn't. Of note, the substantial lowering of blood pressure and attainment of blood pressure control in both patient groups were obtained without a significant change in the total number of prescribed antihypertensive medications.

The Registry has proved useful in identifying racial/ethnic (black vs. white) differences in control of blood pressure, lipids and diabetes (disparities in control at Veterans Administration (VA) sites was roughly half those at civilian sites) [31–38]. Further analyses suggested that better access to healthcare (more visits/year) and medications likely contributed to the narrowing of racial disparities in hypertension control at the VA sites [32]. The Registry database confirmed that white men with and without diabetes had better control of LDL-cholesterol levels than white women and black men or women [38]. Of interest, the disparities in LDL-control among non-diabetics could be explained by the fact that white men were more likely than other groups to receive prescriptions for lipid-lowering medications. However, among non-diabetics the same relative differences were observed in LDL-cholesterol levels, despite evidence that white men and women as well as black women were equally likely to receive lipid-lowering therapy. In a subsequent analysis of the Registry database, it was found that control of blood pressure, lipids and diabetes to the values noted previously [39] was significantly better in white men (at 23%) than African American women (at 9%). These differences were in large part attributable to differences in LDL-cholesterol control. Of note, the work performed under the ASH Registry led to two separate awards from the U.S. Department of Health and Human Services, with recognition as a “Best Practice Model” and for “Reducing Health Disparities.”

There are many potential research and quality assurance programs that this outreach effort may eventually affect. One of the more interesting ones is the educational program spearheaded by

the ASH Carolinas, Florida and Georgia Chapters, which links very well with the Registry Initiative described above. In this program, Hypertension Specialists engage in Continuing Medical Education activities, sponsored by the American Society of Hypertension, which have as their purpose the improvement of blood pressure (and other cardiovascular risk factor) control rates in the patients seen by the attendees at the educational activities. Preliminary data from these programs show that the attendees at the programs are quite likely to join the Hypertension Initiative, to report their data in a timely fashion, and to show a significant improvement in control rates, not only for blood pressure, but also for other cardiovascular risk factors. These data, albeit preliminary, have been sufficient for Blue Cross/Blue Shield of South Carolina to provide a one-time payment of \$5000.00 for every physician who becomes an ASH-Certified Hypertension Specialist. The fact that the newly-Certified physician is likely to join the educational program, and to educate other healthcare providers to emulate his/her efforts to improve cardiovascular risk factor control, is but an extension of the obvious benefit of having such ASH-Certified Hypertension Specialists in the community. Not only do they control their patient populations' cardiovascular risk factors better than their non-Certified colleagues, but they also pass on information on how to achieve these better levels of control to other colleagues as part of the educational programs [40].

X. Specific Responses to Requests from Pamela R. West, PT, DPT, MPH; Health Insurance Specialist; Division of Practitioner Services; Centers for Medicare and Medicaid Services on 07 May 2010 at 11:13 AM (EDT)

1. The primary purpose or reason for the development of a specialty code for hypertension specialists is, as indicated above, to recognize the specialized knowledge, experience, and skills of the hypertension specialist.
2. The practice pattern for hypertension specialists differs from those of other primary care parent specialties, as reflected in the different patient populations they serve. In general, patients seen by hypertension specialists have a greater severity of hypertension, take a larger number of antihypertensive and other prescribed therapies, have more target-organ damage and more advanced cardiovascular and renal disease, and far more commonly have “uncontrolled” blood pressures. Hypertension specialists are experts in the transformation of “resistant” or “refractory” hypertensive patients into “controlled hypertensive” patients.
3. The percentage of Medicare patients that are treated by Hypertension Specialists is unknown. To address this, an e-mailed survey was recently sent to all 1324 Hypertension Specialists residing in the US; the response rate was 21%. On average, each Hypertension Specialist reports seeing 135 (interquartile range: 188) Medicare beneficiaries with complex or resistant hypertension annually. These data suggest that currently, Hypertension Specialists see about 179,000 Medicare beneficiaries with complex or resistant hypertension annually (0.4% of the Medicare population). Conservative projections of existing data suggest that, if a mechanism existed (e.g., a specialty code for Hypertension Specialists) to refer these patients to Hypertension Specialists, 2.5-3.4 million Medicare beneficiaries could achieve controlled blood pressure [41].

4. As noted above, ASH Hypertension Specialists are not currently recognized as such by the American Board of Medical Specialties (for MDs) or the American Osteopathic Association (for DOs). All ASH Hypertension Specialists are, however, Board-Certified in at least one primary care specialty, as recognized by the American Board of Medical Specialties or the American Osteopathic Association. As noted above, this is a requirement for consideration as an ASH-Certified Hypertension Specialist. In addition, the American Society of Hypertension has ongoing relationships with most other professional organizations involved in Continuing Medical Education activities that would be expected to be of joint interest. For example, ASH has sponsored and accredited symposia for Continuing Medical Education at recent national or regional meetings of the American Heart Association, American College of Cardiology, American Society of Nephrology, as well as other professional organizations.
5. On February 26, 2009 at 3:50 PM, ASH formally requested that the National Uniform Claims Committee (NUCC) develop a healthcare taxonomy code specifically for ASH-Certified Hypertension Specialists. ASH was notified on April 09, 2009 at 2:14 PM, that this request was denied by NUCC.

XI. Summary

Collectively, these data make it likely that ASH-Certified Hypertension Specialists should enhance cardiovascular risk factor control rates, not just among the patients they see with “resistant hypertension,” but also in their populations as a whole. In addition, ASH-Certified Hypertension Specialists have had, and are likely to continue to exert, a salutary effect on other healthcare providers in their local areas, who follow the lead of the ASH-Certified Hypertension Specialist in improving cardiovascular risk factor control in the short-term, and probably cardiovascular outcomes in the long-term. Such efforts should be rewarded with a specialist code for hypertension specialists.

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